IES Institute of Education Sciences

FAMILY AND CAREGIVER ACTIVITY

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Sharing Cookies: Developing Young Math Learners' Understanding of Fractions

Regional Educational Laboratory West

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Young children are exposed to fractions early in their lives, such as when they are asked to share a set of crayons fairly or an apple evenly. When they begin learning in school about fractions and how they are written, such as ¼, many children have difficulty seeing that fractions are numbers that relate to real-life situations. Practice can help children make these connections and understand fractions. In this activity, your child will practice sharing multiple cookies and a single giant cookie equally to find the fraction of the total each person will get.

Tips and Suggestions:

- Let children be math detectives, using what they already know to try the activity and explain their thinking before you offer help.
- Encourage the child to draw and use small objects like pennies to show and explain their thinking.
- This icon shows a way to "dig deeper" into the activity to make it more challenging.

Let's Get Started with Sharing and Fractions!

Your teacher had leftover treats from a recent field trip to give away. She gave you two Snack Packs and asked you to share all the cookies equally with friends. Each Snack Pack has 6 cookies inside.

Learning Goal: Use real-life sharing scenarios to practice fractions concepts

Grade: 2–4 (ages 7–9)

Materials: Paper, pencil or pen, small objects like pennies

Step 1: Draw or use small objects to **explain how many total cookies** you have to share.

Step 2: Draw a picture and explain how you would **share all the cookies equally** between **2 people**. How many cookies would you each get? What fraction of the total would you each get?

Step 3: Repeat Step 2, sharing the cookies among **3 people, then 4 people, and then 6**. Each time, explain how many cookies each person would get, and what fraction of the total they would get.

Step 4: Draw a table like this one below and **summarize** what you noticed about sharing the cookies.

Number of people sharing	How many cookies each person gets	What fraction of the cookies each person gets
2		
3		
4		
6		

Dig Deeper

Another teacher had a pan of chocolate chip cookies that melted together into one giant cookie. She gave the giant cookie to you and asked you to share with friends.

Step 1: Draw a picture of a giant rectangular cookie.

Step 2: Pick 2, 3, 4, or 6 people and show on the picture how you would **equally share the giant cookie with that many people.** What fraction of the total would each person get?

Step 3: Repeat Steps 1 and 2, sharing with different numbers of people.

Ways to support your child

- In the Snack Pack activity, **help your child think about equal size groups.** This activity uses 12 because there are several ways to share the cookies equally into groups that add to 12, as shown in the table below. The number of groups helps them with the bottom number of the fraction, the denominator.

The number of people sharing shows how many groups of cookies are needed	How many cookies each person gets	What fraction of 12 cookies does each person get?
2	6	1/2 or 6/12
3	4	1/3 or 4/12
4	3	1/4 or 3/12
6	2	1/6 or 2/12
12	1	1/12

- If your child is struggling, **prompt them to share the cookies one at a time,** for example: one for you, one for me, a second for you, a second for me, and so on until all 12 cookies are shared. You can also use the heads and tails sides of the pennies or circles on a page to show this.
- **Have your child use the table to look for patterns. Ask questions** like "When there are 4 people sharing, do you get more cookies than when you shared with just one other person? Why or why not?"
- For the Snack Pack activity, **ask the child *how many*** cookies each person would get. For the Dig Deeper activity, **ask the child *how much*** of the whole giant cookie each person would get.
- The Dig Deeper activity that involves sharing one object results in shares that are **unit fractions**, a single portion of a whole like 1/3 and 1/4, whereas the Snack Pack activity that involves sharing multiple objects results in non-unit fractions like 3/4. Color in portions of a drawing to help children understand that **non-unit fractions** are composed of unit fractions. For example, 3/4 = 1/4 + 1/4 + 1/4.

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